

REMARKS

Claims 1-10, 13-16, 18, and 19, are all the claims pending in the application. Previously claims 11, 12, and 17, were canceled without prejudice or disclaimer. Reconsideration and allowance of all the claims are respectfully requested in view of the following remarks.

Claim Objections

The Examiner objected to claims 9 and 14 as including informalities. Specifically, the Examiner asserted that in claim 9 “boding force” should be --bonding force-- and that in claim 14 “said seal member” should be --said sealing member--. Accordingly, to overcome this objection, Applicant has adopted the Examiner’s suggestions in principle.

Claim Rejections - 35 U.S.C. §112

The Examiner rejected claims 1-10, 18, and 19, under §112, 2nd paragraph as indefinite. The Examiner asserted that the claim 1 phrase “adapted to a rolling bearing” is unclear, and that there is insufficient antecedent for “said sealing member” as set forth in claims 1 and 3-7. To overcome this rejection, Applicant has amended claim 1 by deleting “adapted to a rolling bearing”, and by setting forth the sealing member for the first time. Additionally, other amendments to claim 1 have been made to improve its readability.

Claim Rejections - 35 U.S.C. §103

- The Examiner rejected claims 1-4, 8, and 10, under §103(a) as being unpatentable over US Patent 5,882,121 to Saigusa (hereinafter Saigusa) in view of US Patent 5,270,887 to Edwards et al. (hereinafter Edwards). Applicant respectfully traverses this rejection for at least the following two reasons.

First, the references fail to teach or suggest all the elements as set forth in claim 1.

Claim 1 sets forth a rolling bearing comprising: an inner ring, an outer ring, and a space formed therebetween; and a sealing film covering said space, the sealing film comprising: a portion being bonded and fixed to an axial direction extreme endmost surface of one of the inner and outer rings; a core layer; and an aluminum or alumina film disposed on the core layer.

With the above arrangement, there is no need for an engagement groove for fixing a seal member. Thereby, a dimension of the bearing in the axial direction can be reduced as compared with that when a sealing plate is used. Further, because the sealing member is formed with a film material, it can have an extremely small thickness. Therefore, even when fixing the sealing member on the axial direction end surface of one of the bearing rings, the axial direction size of the rolling bearing, or the axial direction size of a thin motor with the rolling bearing assembled therein, is not bulky.¹

In contrast to that set forth in claim 1, Saigusa discloses a sealing plate. Also in contrast to that set forth in claim 1, Edwards is directed to a tape for covering a side of an HDD. That is, both Saigusa and Edwards fail to teach or suggest a sealing film as set forth in claim 1. Accordingly, for the sake of argument, even if one of ordinary skill in the art were motivated to combine Saigusa and Edwards as suggested by the Examiner, any such combination would still not include a sealing film as set forth in claim 1.

Second, there is no motivation to combine Saigusa and Edwards as suggested by the Examiner.

As set forth in the Amendment filed on November 25, 2003, it is Edwards' concern with electromagnetic shielding that gives rise to his use of aluminum in his sealing tape. Accordingly, one of ordinary skill in the art looking at the references as a whole, would not have been motivated to use aluminum for Saigusa's sealing plate, in which there is no concern for electromagnetic shielding.

Beginning on page 9 of the Office Action, the Examiner asserts that Edwards' aluminum sealing tape provides the advantages of a contaminant free environment and also avoids possible air leak points.² However, neither one of these advantages arises from the use of aluminum. Instead, Edwards discloses that providing a contaminant free environment is due to the thickness of the adhesive layer, and that avoiding air leak points is due to the use of one piece of tape that

¹ Specification at page 7, lines 11-18.

² Office Action at the paragraph bridging pages 9 and 10.

is long enough to go around the entire periphery of the device. See, for example, Edwards at: col. 12, lines 17-35 (problems of housing roughness causing air leaks is solved by “an adhesive backing 146 ... which is thicker than the underlying substrate 148.”); and col. 12, lines 36-43 (“use of a single piece tape seal avoids possible air leak points where separate pieces would otherwise have to join.”). On the other hand, Edwards describes that it is the aluminum foil that “provides shielding of the HDA components from electromagnetic interference from external electromagnetic fields.” See col. 12, lines 43-45. Accordingly, one of ordinary skill in the art—following Edwards’ teachings of preventing entry of contaminants and air leaks—would not have provided Saigusa’s sealing plate with an aluminum layer as suggested by the Examiner.; instead he would have provided an adhesive backing thicker than the underlying substrate, and would have provided a one-piece sealing plate.

For at least any of the above reasons, Saigusa and Edwards fail to render obvious Applicants’ claim 1. Likewise, these references fail to render obvious dependent claims 2-4, 8, and 10. Nonetheless, Applicant traverses this rejection as it applies to claim 10 for the following additional reasons.

Claim 10 sets forth that the adhesive has a bonding force which is lowerable when the adhesive is heated. The Examiner asserts that it “is inherent that ... the adhesive joint is detached when subject to heat.”³ The Examiner is simply wrong. That is, not all adhesives have their strength lowered when heated. Instead, as in the case of thermosetting resin based adhesives, some adhesives increase bonding strength when heated. Accordingly, the Examiner’s rationale for rejecting claim 10 is mistaken.

- The Examiner rejected claims 13 and 15 under §103(a) as being unpatentable over US Patent 6,038,205 to Katakura et al. (hereinafter Katatura) in view of Saigusa. Applicant respectfully traverses this rejection for at least the following reasons.

First, the references fail to teach or suggest all the elements as set forth in the claims.

³ Office Action at page 4, 4th full paragraph.

Similarly to claim 1, claim 13 sets forth a rolling bearing comprising a sealing film. As noted above Saigusa fails to teach or suggest a sealing film. Katakura also fails to teach or suggest a sealing film; instead, it teaches a “sealing member 11”.

Similarly to claim 10, claim 15 sets forth a bearing device wherein a sheet covering a gap between an inner ring and an outer ring is bonded such that the detachable bonding force is lowerable when the bonded portion of the sheet is heated. Again, the Examiner relies on the rationale that it is “inherent that any adhesive joint will be ... detached when subject to heat.”⁴ As noted above, this simply is not true as, for example, in the case of thermosetting adhesives.

Second, with respect to claim 15, the Examiner’s suggested combination of Saigusa and Katakura impermissibly would make Katakura unsuitable for his intended purpose. Yet if a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.⁵ Consequently, without suggestion or motivation to combine, *prima facie* obviousness is not established.

Katakura’s intended purpose is “providing a spindle motor in which the air flow generated in the motor is more precisely controlled to eliminate air flow in and out of the motor ...”⁶ In order to “more precisely” control air flow, Katakura closely regulates the spacings between elements in the spindle motor. More specifically, Katakura provides a space between sealing member 11 and annular member 9, as shown in Fig. 2, and as described at col. 3, lines 11-19. And in that space there is an arrow designating a specific air flow. See also, Katakura at col. 3, line 45 - col. 4, line 67, wherein Katakura discusses the importance of the air flow, and how the configurations of the air passages effect that air flow.

⁴ Office Action at page 7, 1st full paragraph.

⁵ *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

⁶ Katakura at col. 1, lines 55-61.

The Examiner suggests placing Katakura's sealing member 11 at the extreme endmost side of the outer ring as a "matter of design choice".² However, this is not simply a matter of design choice. Instead, placing Katakura's sealing member 11 at the extreme endmost side of the bearing's outer ring would eliminate the space between the sealing member 11 and the annular member 9 as shown in Fig. 2. Yet as noted above, this space provides an air flow path that is essential in achieving Katakura's objective of more precisely controlling airflow. Again, see Katakura at col. 1, lines 55-61.

Accordingly, one of ordinary skill in the art—looking at the teachings of the references as a whole—would not have been motivated to provide Katakura's sealing member 11 at the extreme endmost side of the bearing's outer ring, because doing so would eliminate an essential air flow path and, thereby, would render Katakura unsatisfactory for his intended purpose.

For at least any of the above reasons, Katakura and Saigusa fail to render obvious claims 13 and 15.

- The Examiner rejected claim 9 under §103(a) as being unpatentable over Saigusa in view of Edwards and further in view of US Patent 5,596,235 to Yazaki et al. (hereinafter Yazaki). Applicant respectfully traverses this rejection for at least the following reasons.

As noted above, the Examiner's attempted combination of Saigusa and Edwards is deficient. The Examiner relies on Yazaki as teaching the use of ultraviolet ray irradiation on adhesive for curing or detaching. However, Yazaki fails to teach or suggest anything that would cure the above-noted deficiencies. Accordingly, Saigusa, Edwards and Yazaki fail to render obvious Applicant's claim 9.

- The Examiner rejected claims 14, 18, and 19, under §103(a) as being unpatentable over Katakura in view of Saigusa and further in view of Edwards. Applicant respectfully traverses this rejection for at least the following reasons.

As noted above, the Examiner's attempted combination of Katakura and Saigusa is deficient. The Examiner relies on Edwards as teaching the use of sealing tape comprising a core

² Office action at page 6, last paragraph.

layer of polyester and an aluminum foil disposed on the polyester.⁸ However, Edwards fails to teach or suggest anything that would cure the above-noted deficiencies. Accordingly, Katakura, Saigusa, and Edwards fail to render obvious Applicant's claims 14, 18, and 19.

- The Examiner rejected claim 16 under §103(a) as being unpatentable over Katakura in view of Saigusa and further in view of Yazaki. Applicant respectfully traverses this rejection for at least the following reasons.

As noted above, the Examiner's attempted combination of Katakura and Saigusa is deficient. The Examiner relies on Yazaki as teaching the use of ultraviolet ray irradiation on adhesive for curing or detaching.² However, Yazaki fails to teach or suggest anything that would cure the above-noted deficiencies. Accordingly, Katakura, Saigusa, and Yazaki, fail to render obvious Applicant's claim 16.

Allowable Subject Matter

The Examiner did not apply any art-based rejections against claims 5-7. Additionally, as noted above, the rejection of these claims under §112 has been overcome. Accordingly, claims 5-7 should now be in condition for allowance, however, they have not been written in independent form because of the belief that claim 1 is allowable as written.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

⁸ Office Action at page 8, 1st paragraph.

² Office Action at page 8, 5th full paragraph.

Amendment Under 37 C.F.R. § 1.111
US Appln. 09/774,576

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The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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